



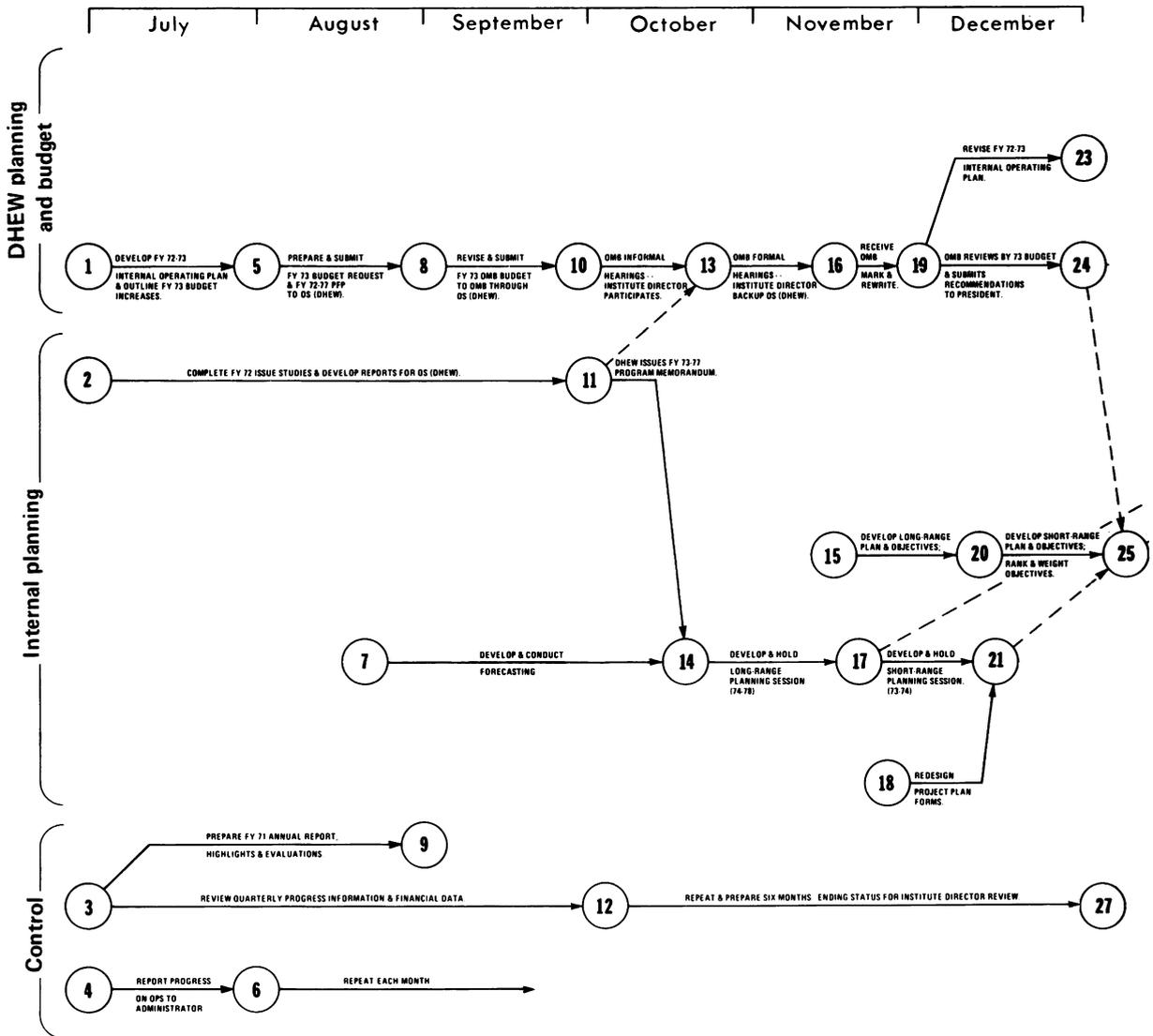
PLANNING FOR OCCUPATIONAL SAFETY AND HEALTH

DAVID W. ASPER

■ Government administrators, from the President to program directors, have become increasingly cognizant of the need for more effective and efficient utilization of the public dollar. Such awareness has been manifested in several ways, to wit, Presidential initiation of a Government-wide planning and budgeting system in August 1965, implementation of the Operational Planning System by the Secretary of the Department of Health, Education, and Welfare Robert H. Finch, in March 1970, and the appearance of a special cadre of Government professionals called program planners over the past few years. The Bureau of the Budget was reorganized in July 1970, becoming the Office of Management and Budget, to acknowledge in name and function the virtues of management in Government administration.

Mr. Asper is chief of the Planning and Program Development Branch, National Institute for Occupational Safety and Health, Health Services and Mental Health Administration. This material was the subject of a presentation at the sixth joint meeting of the Clinical Society and Commissioned Officers Association of the Public Health Service in Galveston, Tex., April 5, 1971. Tearsheet requests to David W. Asper, 5600 Fishers Lane, Parklawn Building, Room 10A16, Rockville, Md. 20852.

National Institute for Occupational Safety and Health planning schedule—fiscal year 1972



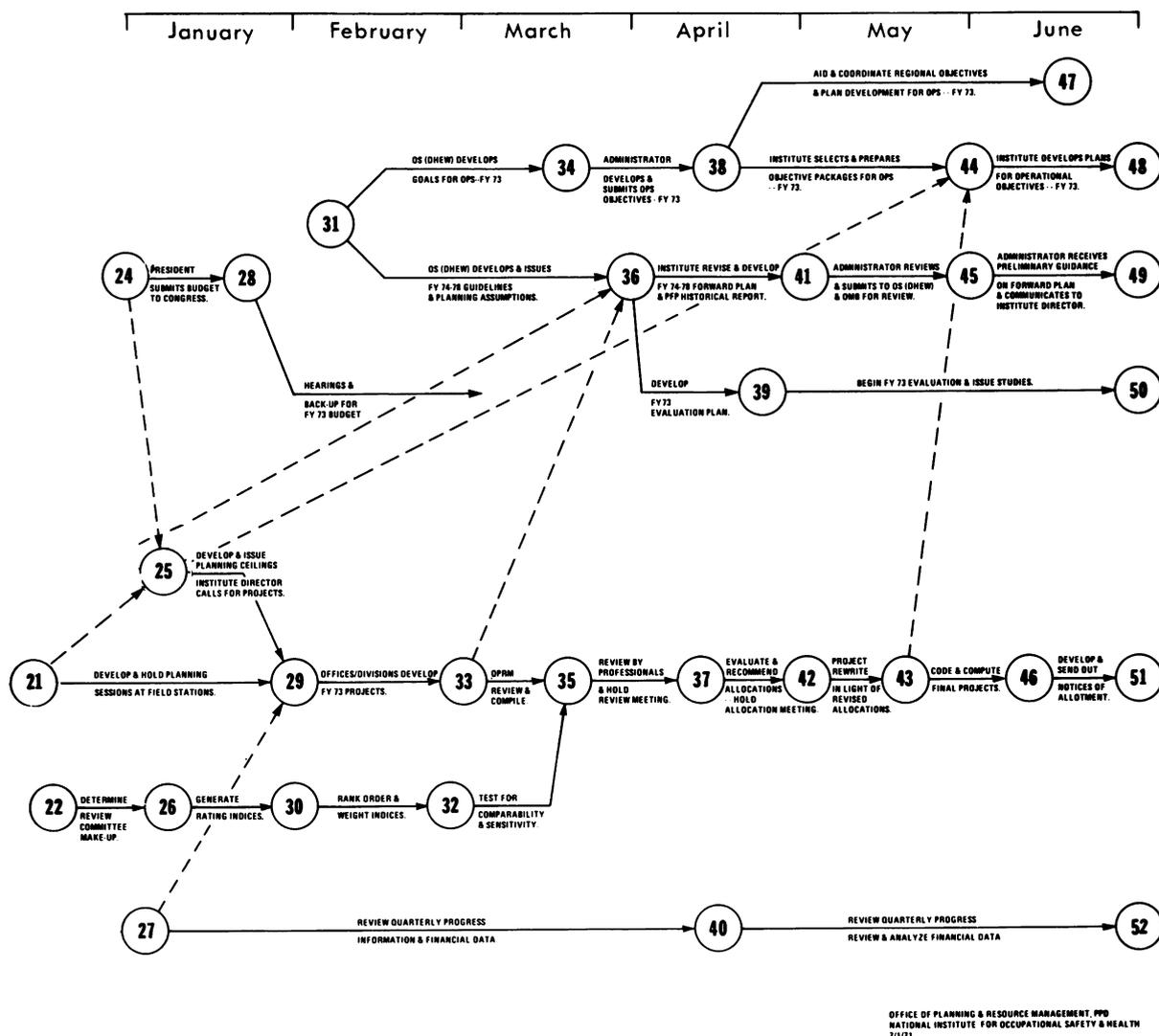
To this extent, program directors, who are the tail of the administrative dog, must increasingly not only administer and manage, but also “market” their programs and the potential effectiveness of those programs to the resource allocators. The result, however, is not without value, for in the competitive frenzy for the scarce resources, many program directors have developed and formalized planning schemes aimed at identifying needs, priorities, and strategies to insure, to the greatest extent possible, maximum benefit to the American public.

Perhaps the most perplexing task for many public health administrators is to define the direction of the program in the form of unequivocal

objectives and then to stimulate projects designed to meet those objectives. In the absence of program objectives and direction, individual project plans at the bench level tend to dictate rather than follow program direction, resulting in a mass of isolated, ongoing projects that, in many cases, make little contribution or have little relevance to established program priorities. What follows is an explanation of one program’s attempt to meet the challenge of fiscal responsibility at the operating level through planning.

The National Institute for Occupational Safety and Health (NIOSH) has developed and is implementing a planning cycle that assures project directors of guidance by Institute managers on

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long- and short-run objectives, priorities, and strategies before bench-level projects are proposed and begun. The figure depicts the cycle graphically by means of a modified PERT (Program Evaluation and Review Technique) network with a time scale across the top of the plot. Subsequent reference to the figure through numeral notation of the activities described in the material that follows will, I hope, deepen understanding of the text and facilitate visualization of the interfaces with “external” planning systems.

Forecasting

Before Institute managers can address themselves to the task of developing objectives, an at-

tempt should be made to forecast future occupational safety and health problems so that management is anticipatory rather than crisis oriented (activity 7-14). To this extent, the program is action oriented rather than reaction oriented. Obviously, any such mechanism will be less than ideal in terms of the information generated; however, the alternative of just letting the crises materialize is clearly unacceptable.

Any forecasting, in order to be comprehensive, must survey persons representative of the universe of expertise outside the organization. Spokesmen from industry; labor; Federal, State, and local governments; journalism; educational institutions; and professional associations such as the Ameri-

can Public Health Association, American Industrial Hygiene Association, Industrial Medical Association, American Medical Association, American Society of Safety Engineers, and the National Safety Council should be queried. The Institute's advisory committees, the National Advisory Committee for Occupational Safety and Health, and the Secretary's Coal Mine Health Research Council, of course, should be included.

To accomplish the polling, a modified Delphi technique developed by the Rand Corporation (1) is used. This technique, which is based on the systematic solicitation of expert opinion, is particularly useful when the number of respondents is large and geographically dispersed and when individual bias and persuasion are to be avoided. It obviates direct debate in reaching a consensus by providing for sequential individual interrogations interfused with opinion feedback. The use of questionnaires minimizes cost and provides quantitative hard copy.

Concomitantly, all relevant data from internal intelligence and research programs must be assembled. Included would be results of continuing research and information from the Institute's National Surveillance Network for Occupational Safety and Health (2). This intelligence system will provide answers to several basic questions: Who is exposed to what type of occupational hazards? To what degree are they exposed? In what industries are they located? Do they have a health decrement? A priority rating (3) is assigned to hazards found in the workplace. This rating is based on several indices including population exposed, relative severity of risk, incidence of injury and disease, and trend of future exposures.

Long-Range Planning

Once all pertinent information is gathered from intra- and extra-Institute sources, including health strategy and priority guidance from the Department (activity 11-14), it is the responsibility of top-level Institute management to develop both long-range (5- to 7-year) and short-range (1- to 2-year) objectives which clearly indicate what the National Institute for Occupational Safety and Health will accomplish in the stated time.

In this context, an objective is a statement of proposed achievement during a specified period and describes a measurable amount of progress toward a goal or the maintenance of a measurable level as required by a goal. This definition of an

objective will not be disappointing when control efforts are applied later. This definition requires precise and oftentimes quantitative statements. Perhaps more important, the plan must be well documented so that followup evaluative efforts may determine if the strategies employed were an effective means of dealing with the problem.

The long-range planning session (activity 14-17) is attended by the top Institute staff, gathered at a place distant to office routine for a retreat where formal and informal discussions may be held. The conduct of these sessions will vary, depending on the individuals, and is usually best left as flexible as possible. Topics for discussion likewise should be open; however, some subjects must be considered.

First, a review and resolution of the organization's mission and goals is a requisite for following discussions. Most agencies engaged in planning health programs will have a mission legislatively imposed or dictated by a charter or similar instrument. General duties and jurisdictional authority are typically delineated. Although most such organization missions are a matter of public law, it is often necessary to review and recommend legislative changes, especially in situations involving expiring legislation.

Second, the results of evaluative and special issue studies should be presented and recommendations digested. These studies usually involve broad strategy and are therefore proper prerequisites to planning operations. In addition, some consideration needs to be given to the broad strategy to be employed in meeting this mission or goal, that is, the "mix" of activities—the relative percent of funds to be spent for development of standards, technical assistance, and training. Important, too, are considerations of funding strategy, that is, the mix of inhouse effort, contracts, and grants.

Third, the group must address itself to the development of a number of program objectives, which are broad yet definable and measurable, and usually cut across intraorganizational lines. Such objectives are long-range, specified accomplishments toward which programs may be directed, for example, to extend coverage of the inplant employee health services from 28 percent of the working population to 39 percent by 1977. Some objectives may be developed without a time reference, but these are related to a broader goal of elimination of a given health problem, for exam-

ple, to initiate and conduct research to develop techniques for the prevention and control of occupational diseases of miners and persons who work with or around the products of coal mines, in areas outside of such mines, and under conditions which may adversely affect the health and well-being of such persons.

In addition, approximate levels of resources required to accomplish these objectives should be specified in each of the planning years. It is in the formulation of these objectives that the material obtained and prepared from the forecasting exercise finds its most valuable use. The material derived from the forecasting serves as the baseline from which to formulate new programs and course changes.

Clearly, adequate preparation by the participating staff is mandatory for an effective session. When possible, assignments should be made and presentations solicited. Of course, if long-range planning has been done in prior years, the previous year's plan, updated with a report of progress toward stated objectives, is required reading and may serve as a good point of departure. The output (activity 15–20) from this session is a formal written commitment by the Institute for future action in occupational safety and health. This program plan communicates the Institute's intentions to all interested persons, and to this extent, becomes a "shopping list" for project proposals from both internal and external sources.

Short-Range Planning

Short-range (planning year and planning year plus 1) objectives may be developed (activity 17–21) after finalization of the Institute's long-range plan. These operational objectives establish a measurable amount of progress to be made toward a target and also include delineation of a specific strategy, for example, to stimulate the development of 10 model inplant employee health service programs in fiscal year 1973 and 25 such programs in fiscal year 1974 through a series of demonstration contracts to approved clinics and medical facilities.

Note that the operational objectives are (a) subsumed by long-range objectives, (b) much more detailed and immediate, (c) call for a plan of action to facilitate accomplishment, and (d) indicate approximate levels of resources required to do the job. These observations suggest that for each program (long-range) objective, a series of

operational objectives are developed detailing an approach, a mix if you will, of activities designed to accomplish the stated end. A great deal of flexibility can be introduced in the actual development of these operational objectives. Since these objectives are technical and detailed by definition, their development is best accomplished by Branch- and Section-level scientists, engineers, and physicians who will be supervising personnel directly responsible for their completion.

In most organizations the delineation of these objectives would involve many more personnel than could reasonably be handled in a single mass meeting. Therefore, individual working sessions should be encouraged. If program objectives call for activity from several suborganizational groups, it is incumbent on the senior staff to obtain appropriate joint review of and concurrence on operational objectives.

Ordering of Objectives

It is, or course, not enough that a program develop a number of very precisely worded objectives, if, as most agencies or programs do, they feel the pinch of scarce economic resources. An order of priority must be established for these objectives (activity 20–25). Assuming that scarce resources will be distributed first among objectives with the highest priorities, allocators will move down the list of objectives with decreasing priorities until monies have been expended.

The proliferation of objectives that may be generated through the planning process impedes the development of priority ranking by inspection. To introduce a rational method of comparing the various objectives or alternatives, a survey of decision-weighting models was initiated, resulting in the selection of a technique called DARE (Decision Alternative Ratio Evaluation) (4).

This method produces cardinal weighted scores, is simple to use and, perhaps most important, minimizes the number of decisions required of the decision maker. With this tool and the list of objectives, the raters (middle and senior staff) individually weight and rank the objectives. The raters are encouraged to bear in mind the priority rating assigned to hazards found through the National Surveillance Network for Occupational Safety and Health (2) if an objective relates to a rated hazard. The individual responses are then reranked based on mean weights. If either time or equipment permits, some measures of dispersion,

for example, standard deviation, about the mean may be employed to give some indication of agreement on ratings.

Project Planning

With a long-range plan and the ordered list of operational objectives complete, potential project directors are assembled in small groups at the various field stations to be oriented in the planning step ahead, and most important, officially presented the approved long- and short-range plans (activity 21–29). With the near completion of the planning-year executive budget cycle, planning ceilings based on an assumed budget can be presented (activity 25–29). The ceilings are inflated by 20 to 25 percent over the expected budget to solicit imaginative projects, insuring the luxury of choice while still maintaining a reasonable lid on the resource requests.

The project plan is the quintessence of the planning scheme. A project may be defined as a discrete and identifiable package of work that relates to and is a subset of a particular operational objective. A project plan is detailed on a form by potential project directors in the light of the Institute's known objectives and the priority of each (activity 29–33). This form, developed by the Institute, has a few important features which deserve mention.

Project narrative. This section contains four parts.

1. Statement of the established operational objective to which the project attempts to relate and its priority.

2. A brief description of the total project (if it extends beyond 1 year) and its ultimate objective. Included should be an explanation of how the project relates to and will aid in accomplishing the relevant operational objective.

3. The specific project objectives to be accomplished during the planning year. The strategy and methodology of operation should be detailed here with appropriate justification of major expenses, for example, equipment, consultants, and use of contracts.

4. If the project is ongoing, significant accomplishments made during the preceding years should be itemized.

Accomplishment plan. Quantitative statements of intended progress or benchmarks need to be clearly detailed to facilitate monitoring and control functions.

Personnel summary. One of the most critical and costly, and yet many times ignored or mis-managed resources is personnel. Many times personnel cost may be 90–95 percent of the cost of the project. Therefore, personnel who are to work on the project should be itemized.

Financial summary. Of course, direct materials, equipment, travel, and other costs must be detailed.

Project Review

Once developed, these project plans are screened for completeness (activity 33–35) and must be reviewed for relevance to the program as well as for scientific and technical merit. An internal review committee is commissioned each year by the Institute Director (activity 22–26) to review individually and then to discuss each project collectively. The committee then reaches a consensus rating indicating relative priority of each project (activity 35–37).

The project review committee is composed of top technical and scientific staff representative of all appropriate professions. It is to be emphasized that the committee members are not selected because of their administrative or supervisory duties within the Institute.

Each member is assigned 30 to 40 projects to be reviewed within his technical or scientific discipline but not within his organizational purview. Although he is assigned to review only a given number of projects, he is given a complete set of proposed projects to allow perusal of related but unassigned projects. It should be noted that the committee member may review or rate any or all of the additional projects, but in any event, at least three reviewers are assigned to rate each project.

To facilitate the rating and ranking of project plans, a quantitative review mechanism has been devised by the Institute. Within given project types or classifications, that is, research, technical assistance, program direction, and so forth, indices are developed which aid in the quantitative assessment of project merit (activity 26–30). Obviously one index relates to the previously determined priority of the relevant operational objective, with others testing appropriateness of estimates of time and resources, project strategy and methodology, and probability of accomplishment. These indices, having been developed, must be weighted by the prospective users—the review committee members (activities 30–32 and 32–35). The method of

weighting uses the DARE forced-paired comparison technique (4).

After receiving their assigned projects and accompanying rating sheets, the reviewers individually rate each project by scoring each appropriate index on a scale of 0–5. When the index scores are multiplied by their respective weights and accumulated, that project then has a rating from 0–5. Of course, space is also provided on the rating sheets for the reviewer's comments and suggestions.

When the review committee meets (activity 35–37), comments are solicited, and finally, the three primary reviewers' ratings for each project are combined to form a project rating. Once all projects have been discussed, a complete list of reviewed and priority-ranked project plans can be assembled.

Allocation and Feedback

With a complete list of the project plans, the Institute Director, knowing total resources available for obligation, can at least hope to make a rational and swift selection and allocation (activity 37–42). One caveat remains to be noted. The priority ranking of projects with cumulative cost totals is not meant to be a substitute for executive decision making. On the contrary, it only facilitates further analysis. Other factors obviously must be considered when decisions are being made at this level: cost effectiveness of project trade-offs, elimination of research and service gaps, and project mix.

A critical step remains: feedback to the potential project directors. Each project director should be informed of his project's ratings and consolidated comments so he may rewrite the project plan as necessary (activity 42–43). Once the rewritten project plans are received, resources are totaled and checked against allocations. Notices of allotment by the cost center are then sent out for resource monitoring (activities 43–46 and 46–51).

Concluding Remarks

Although the planning system has been rigorously detailed and time phased, this paper is not intended to suggest that planning is a once-a-year activity. The mechanism must be flexible, for without durability it would surely fail. New high-priority projects evolve during the fiscal year. These new projects must be reviewed and resources found. Planning is then continuous.

Public health planning, like all other planning, must be a two-way process: communication downward of objectives followed by upward flow of strategic plans. Only in this manner can program managers insure coalescence and congruence of individual plans and objectives of the program.

Planning, however, is only part of the job. Evaluation and control must follow. But the job is made easier because the Institute has "planned" for evaluation and control. The credibility of plans is increased when monitoring is assured.

The National Institute for Occupational Safety and Health is philosophically committed to planning in the manner described. While some of the activities remain more potential than real, the staff has at least planned for planning and a framework exists. Let then this brief introduction serve to invite use of the concept of and solicit comments on the Institute's planning for occupational safety and health.

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